CURRICULUM VITAE – Marnie Elisabeth Blewitt

Current Employment

Laboratory head and ARC QEII fellow, Division of Molecular Medicine, Walter and Eliza Hall Institute. January 2010- December 2014
Honorary Member of Department of Genetics, University of Melbourne, January 2011, ongoing
Honorary Member of Department of Medical Biology, University of Melbourne, January 2010, ongoing

Previous Employment

- Senior Research Officer and Peter Doherty Postdoctoral Fellow, Hilton Group, Division of Molecular Medicine, Walter and Eliza Hall Institute. August 2008- December 2009
- Research Officer and Peter Doherty Postdoctoral Fellow, Hilton Group, Division of Molecular Medicine, Walter and Eliza Hall Institute. October 2005-July 2008
- Post-doctoral Fellow for Associate Professor Emma Whitelaw, School of Molecular and Microbial Biosciences, University of Sydney, February 2005-October 2005
- Research Assistant for Dr Trevor Biden, Cell Signalling Group, Garvan Institute of Medical Research, August 2000-January 2001
- Strategy Consultant within Communications and High Technology Division, Andersen Consulting, January 2000-August 2000

Education

- PhD in the Whitelaw Laboratory, School of Molecular and Microbial Biosciences, University of Sydney, (2001-2004).
- B. Sc. (Molecular Biology and Genetics) Hons (First class and University Medal) at The University of Sydney, graduated 1999.

Academic awards and Fellowships

- JG Russell Award, Australian Academy of Science 2010
- Financial Review Boss Magazine Top 30 Women to Watch in Australian Business
- The Age Melbourne Top 100 most influential people 2009
- ARC Queen Elizabeth II fellowship, DP1096092 "An RNA interference based genetic screen for novel epigenetic modifiers involved in mammalian X inactivation" 2010-2014
- Awarded NHMRC Career Development Award ID 637375 "An RNA interference screen for novel epigenetic modifiers involved in mammalian X inactivation, for 2010-2013, declined
- L'Oreal Australia For Women in Science Fellowship, 2009.
- Australian Academy of Science 2009 Ruth Stephens Gani Medal, for human genetics.
- NHMRC Peter Doherty Post Doctoral Training Fellowship, 2006-2009.
- DG Catcheside Prize for best PhD in Genetics within Australia passed in 2005.
- Prize for best student or post-doctoral presentation at Lorne Cancer Conference, 2004.
- Poster Prize at the Lorne Genome Conference 2003.
- Australian Postgraduate Award, 2001-2004.
- University Medal, University of Sydney, 1999
- Alumni Award for Most Outstanding Achievement in Biochemistry 3, 1998.
- Johnson and Johnson Prize for Most Outstanding Performance in Experimental Biochemistry 2, 1997.
- Dean's list of honour; 1996, 1997, 1998.
- University of Sydney Science Scholarship, 1996.

Funding

- Dyson Fellowship, 2010-2014, $500,000 total.
- JG Russell Award, AAS, 2010, $4,000.
- NHMRC Project Grant, Chief Investigator B, 2011-2013 "Genetic and genomic dissection of polycomb repressive complex 2 (PRC2) in cancer", ID 1011663.

- NHMRC Project Grant, Chief Investigator B, 2008-2010 "The role of Smchd1 in X chromosome inactivation", ID 496666.
- NHMRC Program Grant, Co-Investigator, 2007-2008 "Molecular Recognition of Blood Cell Production and Function".
- NHMRC Project Grants applied for in 2011: CIA "Genomic analysis of the novel epigenetic modifier Smchd1 as a tumour suppressor", CIA "Genomic analysis of the role of Polycomb Repressive Complex 2 in haematopoietic stem cells", CIB "Smchd1 is part of a molecular machine that remodels chromatin to silence gene expression", CIB "Epigenetic regulation of monoallelic gene expression during development".

Commercial Interactions

Patents

International PCT Application: PLT8 DCC REF:12823340/30312265. Inventors Blewitt ME, Majewski IJ et al. 2007. Methods of Modulating Platelet Activity and Compositions Therefor

Publications

Primary Publications

1. Lewis RS, Kolesnik TB, Kuang Z, D'Cruz AA, Blewitt ME, Masters SL, Low A, Willson T, Norton RS, Nicholson SE. (2011) TLR Regulation of SPSB1 controls inducible nitric oxide synthase induction. *J Immunol*. Oct 1;187(7):3798-805. Epub 2011 Aug 29. Impact factor **5.7**

2. Young M, Willson T, Wakefiled M, Trounson E, Hilton DJ, Blewitt ME, Oshlack A and Majewsji IJ, (2011) ChIP-seq analysis reveals distinct H3K27me3 profiles that correlate with transcriptional activity. *Nucleic Acids Research*, Sep 1;39(17):7415-27. Impact factor **7.8**, citations **1**

3. Roberts AR, Blewitt ME, Youngson NA, Whitelaw E and Chong S. (2011) Reduced dosage of the modifiers of epigenetic reprogramming Dnmt1, Dnmt3L, SmcHD1 and Foxo3a has no detectable effect on mouse telomere length in vivo. *Chromosoma* May 7. Impact factor **4**

4. Majewski IJ, Ritchie ME, Phipson B, Corbin J, Pakusch M, Ebert A, Busslinger M, Koseki H, Hu Y, Smyth GK, Alexander WS, Hilton DJ and Blewitt ME. (2010) Opposing roles of polycomb repressive complexes in hematopoietic stem and progenitor cells. *Blood* Aug 5;116(5):731-9 Impact factor **10.6, citations** 7

5. Ashe A, Morgan DK, Whitelaw NC, Bruxner TJ, Vickaryous NK, Cox LL, Butterfield NC, Wicking C, Blewitt ME, Wilkins S, Anderson G, Cox TX and Whitelaw E. (2008) A genome-wide screen for modifiers of transgene variegation identifies genes with critical roles in development. *Genome Biol* Vol 9 (12) R182. Impact factor **6.6,** citations **17**

6. Blewitt ME, Gendrel A-V, Pang Z, Sparrow DB, Whitelaw N, Craig J, Apedaile A, Hilton DJ, Dunwoodie SL, Brockdorff N, Kay GK and Whitelaw E (2008) SmcHD1, a protein containing a structural maintenance of chromosomes hinge domain, has a critical role in X inactivation. *Nat Genet* May; 40(5):663-9. Impact factor **34.3,** citations **46**

Preview in ***Dev. Cell***: Heard E, Colot V. "Chromosome Structural Proteins and RNA-Mediated Epigenetic Silencing" *Dev. Cell. 14*, June 2008
Rated as "Must Read" by Faculty1000 Biology
Highlight in ***A-IMBN Research***: Riches E. "Finding the X-factor" June 2008

6. Majewski IJ, Blewitt M, deGraaf C, McManus E, Bahlo M, Hyland C, Smyth GK, Corbin J, Metcalf D, Alexander WS, and Hilton DJ (2008) Polycomb repressive complex 2 (PRC2) restricts hematopoietic stem cell identity. *PLoS Biology* Apr 15; 6(4):e93. Impact factor **12.9,** citations **13**

Primer in ***PLoS Biology***: Sauvageau M and Sauvageau G. "Polycomb group genes: Keeping stem cell activity in balance" *PLoS Biology* Apr 15; 6(4):e113, 2008

7. Chong S, Vickaryous N, Ashe A, Zamudio N, Youngson N, Hemley S, Stopka T, Skoultchi A, Matthews J, Scott H, de Kretser D, O'Bryan M, Blewitt M and Whitelaw E (2007) Modifiers of epigenetic reprogramming show paternal effects in the mouse. *Nat Genet* Vol 35 (5): 614-22. Impact factor **34.3,** citations **46**

Highlighted in ***Nature Reviews Genetics:*** Flintoft L "Absent Mutations make their presence felt" *Nature Reviews Genetics* 8, 410-411, 2007

Rated as "Must Read" by Faculty1000 Biology

8. Blewitt ME, Vickaryous NK, Paldi A Koseki H and Whitelaw E (2006) Dynamic reprogramming of DNA methylation at an epigenetically sensitive allele in mice. *PloS Genetics* April 2(4) e49. Impact factor **9.5,** citations **69**

Highlighted in ***ScienceNOW:*** Balter M "Inheritance is More than Gene Deep" ScienceNOW 12 April 2006

9. Blewitt ME, Vickaryous NK, Hemley SJ, Ashe A, Bruxner TJ, Preis JI, Arkell R and Whitelaw E (2005) An ENU screen for genes involved in variegation in the mouse. *Proc Natl Acad Sci U S A* 102(21): 7629-7634. Impact factor **9.4,** citations **31**

Highlighted in Australian Life Scientist, February 2006 as one of best publications arising from Australian Research in 2005

10. Rakyan VK, Chong S, Champ ME, Cuthbert PC, Morgan HD, Luu KVK and Whitelaw E (2003) Transgenerational inheritance of epigenetic states at the murine *Axin^{Fu}* allele occurs following maternal and paternal transmission. *Proc Natl Acad Sci U S A* 100(5): 2538-43 (please note previous married name Champ). Impact factor **9.4,** citations **192**

11. Mitchell CJ, Kelly MM, Blewitt M, Wilson JR, Biden TJ (2001) Phospholipase C-gamma mediates the hydrolysis of phosphatidylinositol, but not of phosphatidylinositol 4,5-bisphoshate, in carbamylcholine-stimulated islets of Langerhans. *J Biol Chem* 276(22): 19072-7. Impact factor **5.3**, citations **10**

Reviews/ Book Chapters

1. Gearing LJ and Blewitt ME (Sept 2011) Mammalian X inactivation, In; Epigenetics: A Reference Manual, Publisher: Caister Academic Press, Editors Jeffrey M Craig and Nicholas C Wong

2. Blewitt ME and Whitelaw E – for 2012 publication. Mouse models in epigenetics research, in Epigenetics – 2nd Edition. Publisher: Cold Spring Harbour Laboratories. Editors: Danny Reinberg, Thomas Jenuwein and C David Allis

3. Blewitt ME, Chong S and Whitelaw E (2004) How the mouse got its spots. *Trends in Genetics* 20(11): 550-554.). Impact factor **8.7,** citations **8**

4. Blewitt ME and Whitelaw E (2004) Variable expressivity and epigenetics, In; Encylcopedia of Genetics, Proteomics and Bioinformatics, Vol 1, John Wiley Press, Editor Layla Paggetti

5. Rakyan VK, Blewitt ME, Druker R, Preis JI and Whitelaw E (2002) Metastable epialleles in mammals. *Trends in Genetics* 18(7): 348-351.). Impact factor **8.7,** citations **127**

Contribution to Professional Activities and Teaching

Professional Activities

- Organiser of Gender Equity Workshop for Melbourne Medical Research Scientists, June 2011
- Member of WEHI Animal Ethics Committee, 2011 continuing.
- Organiser of the Australian Young Scientists Forum 2010
- President of the WEHI Post-doctoral Association 2007 and 2008.

- Organised WEHI and Howard Florey Joint Post-doctoral Career Development and Grant Writing Seminars 2008.
- Initiating President of WEHI Parents Committee, September 2008 continuing.
- Member of WEHI Education Committee 2007.

Reviewing

- Acted as external reviewer for four NHMRC Project grants 2011.
- Acted as external reviewer for six NHMRC Project grants 2010.
- NHMRC Project Grant Review Panel Genetics 1i member, 2009.
- Acted as external reviewer for five NHMRC Project grants 2007-2009.
- Frequent reviewer for Development and Blood, Occasional reviewer for PLoS Biology, JBC , Trends in Cell Biology and Biotechniques.

Teaching

- Currently supervise 4 PhD students, 1 Masters student and 1 undergraduate student.
- 2 guest lectures at University of Melbourne Genetics Department, May 2011 on Xist and X inactivation, as part of the Honours and Masters student course on non-coding RNA.
- Guest Lecture at University of Melbourne Genetics Department, March 2011 on Epigenetics, as part of second year course component of Bachelor of Biomedicine.
- "Cancer epigenetics" teaching lecture in postgraduate lecture series, Walter and Eliza Hall Institute of Medical Research, April 2011
- 2 guest lectures at University of Melbourne Genetics Department, March 2010 on Epigenetics, as part of second year course component of Bachelor of Biomedicine. Wrote and marked exams.
- 2 guest lectures at University of Melbourne Genetics Department, June 2009 on X inactivation, as part of Masters and Honours students course. Wrote and marked the exams.
- Lecture on Epigenetic Reprogramming and Epigenetic Inheritance for University of Melbourne Department of Genetics Honours Student, June 2006.
- "Epigenetic modifications: DNA methylation and histone modifications" in postgraduate lecture series, Walter and Eliza Hall Institute of Medical Research, May 2006
- Lectured (17 lectures) Molecular Biology for Biochemistry 2 Summer School, 2003 and 2004
- Designed, wrote and demonstrated bisulfite sequencing practical for Third Year Advanced Biochemistry, 2002
- Designed, wrote and demonstrated new practical, Third Year Biochemistry, University of Sydney, 2002-2004
- Demonstrator for Second Year Biochemistry, University of Sydney, 2001
- Demonstrator for Third Year Biochemistry, University of Sydney, 2001

Training Courses

- CRC Commercialisation and Leadership Training, 2006 (1 week course)
- Leadership Training, 2011 (4 day course)

Selected Conference Presentations

- Poster presentation, "An RNAi screen for novel epigenetic modifiers involved in X inactivation" at 50th Anniversary of X inactivation, EMBO workshop, Oxford UK, July 2011
- **Invited speaker**, "Opposing roles of Polycomb Repressive Complexes in haematopoietic stem and progenitor cells" at Genetics Society of Australia Conference, July 2011
- Abstract chosen speaker, "Opposing roles of Polycomb Repressive Complexes in the hematopoietic compartment" at Lorne Cancer conference, February 2011
- **Invited Plenary speaker**, "Molecular mechanisms of epigenetic control – unusual hematopoietic stem cells and screening for new players" at Victorian meeting Australian Epigenome Alliance, November 2010
- Poster presentation, "Opposing roles of Polycomb Repressive Complexes in the hematopoietic compartment" at EMBO Conference on Chromatin and Epigenetics, Heidelberg Germany, May 2009

- Abstract chosen speaker, “Opposing roles of Polycomb Repressive Complexes in the hematopoietic compartment” at Lorne Genome conference, February 2009
- Abstract chosen speaker, “SmcHD1 is a novel chromatin protein critically involved in X inactivation” at Peter MacCallum Cancer and Epigenetics conference, October 2008
- **Invited speaker**, “SmcHD1 is a novel chromatin protein critically involved in X inactivation” at Immunology Group of Victoria meeting, October, 2008
- **Invited speaker**, “SmcHD1 in X inactivation and more” at Epigenetics Workshop, QIMR 2008
- Poster Presentation, “SmcHD1 is a novel chromatin protein critically involved in X inactivation” at Gordon conference on Epigenetics, USA, August 2007
- **Invited speaker**, “An ENU screen for epigenetic modifiers reveals novel sex specific and paternal effects" at GSA2007 (Genetics Society of Australia)
- **Invited speaker**, “An ENU screen for epigenetic modifiers reveals novel sex specific and paternal effects" at CSIRO Transformational Biology Workshop 2007.
- Abstract chosen speaker, “Smchd1 is a novel protein involved in X-inactivation, retrotransposon silencing and transgene silencing in mice” at Lorne Cancer Conference 2006.
- Abstract chosen speaker, “Smchd1 is a novel protein involved in X-inactivation, retrotransposon silencing and transgene silencing in mice” at Sir Mark Oliphant Conference, Epigenetic Regulation in Disease and Development, 2005.
- **Invited speaker**, “An ENU screen for modifiers of epigenetic reprogramming reveals novel sex-specific and biparental effects” at Workshop on Elucidating the Genome-Phenome Code, 2005.
- Abstract chosen speaker, “An ENU screen for modifiers of epigenetic reprogramming reveals novel sex-specific and biparental effects” at Lorne Genome Conference 2005.
- **Invited speaker**, “ENU mutagenesis to identify genetic modifiers of epigenetic phenomena” at Lorne Cancer Conference, 2004, which won the prize for best student or post-doctoral presentation.
- Poster presentation, “ENU mutagenesis to identify genetic modifiers of epigenetic phenomena” at Gordon conference on Epigenetics, USA, August 2003.
- Abstract chosen speaker, “ENU mutagenesis to identify genetic modifiers of epigenetic phenomena” at Methylation Matters, 2003.
- Abstract chosen speaker, “Erasure of methylation marks at the A^{vy} allele in mice occurs primarily by active demethylation immediately post-fertilisation” at the 3rd Annual Australian Developmental Biology Workshop, 2003.
- Abstract chosen speaker, “Variable expressivity at *agouti viable yellow* in the mouse is established after fertilisation” at Lorne Genome conference, 2002.

Invited Departmental Seminars

- “The polycomb repressive complexes play opposing rather than synergistic roles in hematopoietic stem and progenitor cells” at **Monash University**, Department of Anatomy and Developmental Biology, August 2011
- “The polycomb repressive complexes play opposing rather than synergistic roles in hematopoietic stem and progenitor cells” at **The St Vincent’s Institute**, Melbourne, March 2011
- “Opposing roles of polycomb repressive complexes in hematopoietic stem cells” at **The Department of Genetics, University of Melbourne**, March 2010
- “Studies on the molecular mechanisms behind epigenetic control - stories about Smchd1 and polycomb group proteins” at **Queen Mary, University of London**, May 2009
- “Studies on the molecular mechanisms behind epigenetic control - stories about Smchd1 and polycomb group proteins” **Barbera Ell Seminar at Victor Chang Cardiac Research Institute**, Sydney, April 2009
- “Studies on the molecular mechanisms behind epigenetic control - stories about Smchd1 and polycomb group proteins” at **Peter MacCallum Cancer Research Institute**, Melbourne, April 2009
- “Studies on the molecular mechanisms behind epigenetic control - stories about Smchd1 and polycomb group proteins” at **Murdoch Children’s Research Institute**, Melbourne, March 2009
- “Investigating the role of polycomb group proteins in haematopoiesis” at **The St Vincent’s Institute**, Melbourne, July 2007

- "Epigenetic reprogramming in the mouse" at **The Department of Genetics, University of Melbourne**, July 2006
- "Epigenetic reprogramming in the mouse" at **Royal Women's Hospital**, Melbourne, April 2006
- "Epigenetic reprogramming in the mouse" at Murdoch Children's Research Institute, Melbourne, July 2005
- "Epigenetic reprogramming in the mouse" at **The Gurdon Institute, University of Cambridge**, UK, October 2004
- "Epigenetic reprogramming in the mouse" at **Babraham Institute, Cambridge**, UK October 2004
- "Epigenetic reprogramming in the mouse" at **Imperial College London**, UK, October 2004
- "Epigenetic reprogramming in the mouse" at **Walter and Eliza Hall Institute**, Melbourne, June 2004

INTERACTIONS WITH THE WIDER COMMUNITY

- Article on www.theconversation.com.au on epigenetics "Think you can think yourself better? Think again", ran online on May 13th 2011.
- Mentor with Smith Family Tertiary Mentor scheme, 2010 ongoing
- Interviewed by Northcote Leader, local newspaper, February 2010
- Talk at National Youth Science Forum, January 2010
- Interviewed by Jon Faine, conversation hour ABC Radio July 1 2009
- Interviewed by The Age, August 2009
- Part of question and answer panel for L'Oreal Australia Women in Science High School girls lunch 2009 and 2010
- Participated in Women of Note Mentoring Breakfast, for high school girls, years 9-12, 2007 and 2008.
- Interviewed by Melbourne Business School 2008, regarding science as a career path
- Interviewed by Australian Life Scientist, 2006
- Interviewed by A-IMBN Research, 2006
- Interviewed by School of Molecular and Microbial Biosciences, University of Sydney, regarding science as a career path